CLAIMS

1) Method for estimating the quantity of CO_2 present in a geologic formation (20) comprising the following steps:

- said formation is penetrated by a well (10) drilled from the surface,
- said formation is contacted with a drilling fluid having a pH greater than 8 that travels from the formation to the surface,
- a given quantity of return fluid is sampled at the surface and transferred to a cell (5),
- the pH of said quantity of fluid is measured,
- a given quantity of product acidifying said fluid is added to adjust the pH to a value of less than 4,
- the CO_2 level of the gas in the cell is measured after the acidification step,
- the quantity of CO_2 contained in the geologic formation is calculated from the CO_2 measurement.

2) Method according to Claim 1, wherein the quantity of carbonate supplied by the geologic formation and/or by the additives in the formulation of said fluid is taken into account.

3) Method according to one of Claims 1 or 2, wherein the pH is adjusted to approximately 2.

4) Method according to one of the foregoing claims, wherein said gas is transferred by an inert gas scavenging the internal space of the cell.

5) Method according to Claim 2, wherein said additives are taken account by running the CO_2 measurement method on a given volume of initial fluid, i.e. before contact with the formation.

6) Method according to one of the foregoing claims, wherein the sampling rate is determined according to the fluid travel rate.

7) Device for estimating the quantity of CO_2 present in a geologic formation (20) traversed by a well (10) in which a drilling fluid with a pH greater than 8 travels between said formation and the wellhead at the surface, characterized in that it comprises means (7) for sampling a given quantity of fluid at the wellhead, a cell (5) to hold said quantity of fluid, means (11) for measuring the pH in said cell, means (13) for inert-gas scavenging of the internal space of the cell, means (16) for injecting an acidifying product into said cell, and means (15) for measuring the quantity of CO_2 contained in the internal space of the cell.

8) Device according to Claim 7, wherein adjusting means control the acid injection means according to the pH measurement.

9) Device according to one of Claims 7 or 8, wherein the means for measuring the quantity of CO_2 comprise an infrared cell or a thermal conductivity measuring cell.

10) Device according to one of Claims 7 to 9, wherein control means carry out the following steps, at a rate determined by the fluid flowrate:

- Sampling of a quantity of fluid;
- Measurement of pH;
- Injection of a quantity of acid;
- Scavenging the cell space;
- Measurement of CO_2;
- Emptying the cell.

11) Device according to one of Claims 7 to 10, including means for measuring the internal pressure (12) of said cell.

12) Device according to one of Claims 7 to 11, including means for regulating the temperature of said cell.

Figure labeling

Figure 1 (vertical:)

% of each species